Fort Myers Notebook, N-86-03-18

This notebook covers the period March 1886. All of the entries are by Edison and by Mina Edison, whose name also appears as a witness. Most of the notes by Mina Edison deal with lamp experiments. A few concern an electric engine and a hearing aid. The notes and drawings by Edison pertain to magnetism, the search for a new form of energy he called XYZ, and the direct conversion of heat into electricity. Also included is material relating to lamp experiments, the phonoplex, a balloon telegraph, a process to turn natural gas into lampblack for ink, a cash carrier system, a spectroscope design, a storage battery, a hearing aid, and a cotton picker. The book contains 288 numbered pages.

Blank pages not filmed: 110-111, 256-275, 282, 285.

Missing page numbers: 283-284.

N-86-03-18

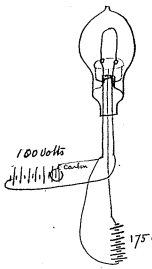
N-86-03-18

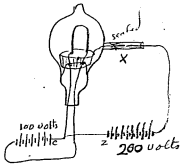
No 46987
ARTHUR & BOWNELL
MANUFACTURERS
55 CEDAR STREET
New York

March 15 1886

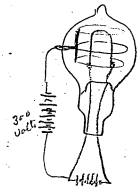
JJT

Niven





X to 1st sealed vacuum obtained. Then wire to above on X = 200 volts charge given at middle Changing X to again sealed + wire drawn away leaving the platina Cylinder inside of globe permanently Charged 200 volts Contrary



Run Current 6 of these

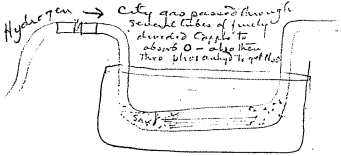
March 18 1886

T. A. L.
Mucia

Carbonize in 4 days in reducing Solution.

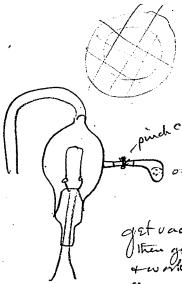
also water absorbing Solution.

Linseed oil. also linseed oil result from Saturated Solution. Chloride Zinc - Protochloride Tin.


Hydrogen
City gas passed through sealed tubes of finely divided Copper to absorb O – also then thro phosphoric acid & get H2O
Sand

Slow Carbonization 3 days —

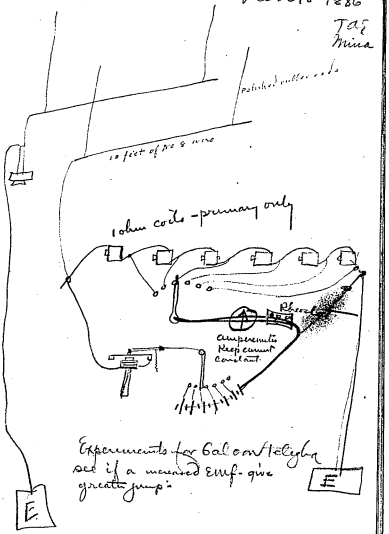
March 18 1886 Tait
Mica



get vac fair - open pinch cock
then git another good vac
+ work lamp then let in
Osmic acid + bring lamp up
hight to deposit. Ommm -

March 18 1886

Tait
Mica

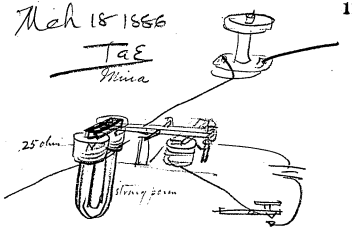


Experiments for Galvanometer
see if a measured E.M.F. give greater jump.

Mch 18 1886

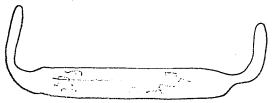
T&E

Mina

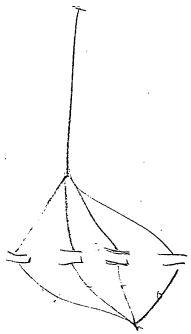


See if sudden pulling off armature gives good galvanometer Jumps —

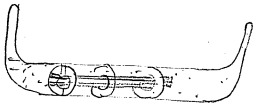
March 18 1886
Miss



Carbonyze 64 hours at 200
in Linseed oil = photo salts
that are reducers in Linseed +
alone if can get heat also
Chloride Cal + Chl Zinc
glacial phos acid. in
sealed tubes to get
pressure ——— also in
Paraffine - Naphthalene + high
melting point Hydrocarbons



March 18 1886 Y05
Mina

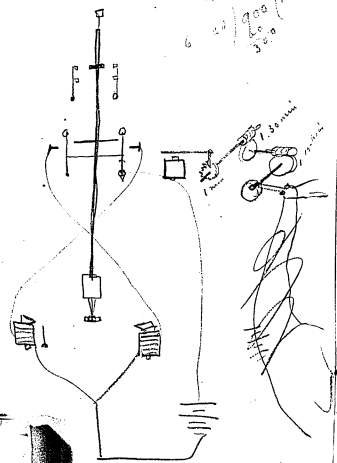


Sealed tube with glass or nickel washers - in center of which pass the filaments to hold them in position - then Carbonyzed with tubes sealed and filled with powdered metallic lead — fused & cemented - Zinc etc,

March 18 1886

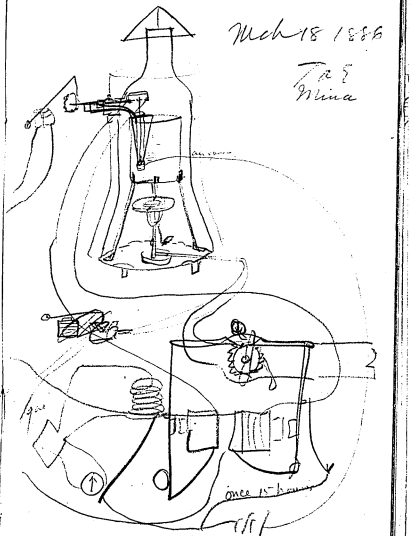
Tag
Mina

Process for burning natural gas into Telephone Lampblack + Item To book ink — Experiment —



March 18 1886

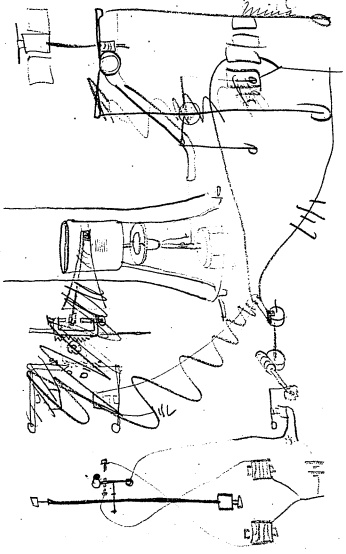
T. E. Nina

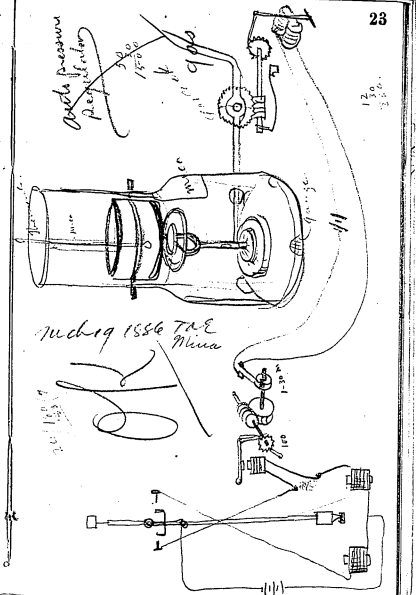


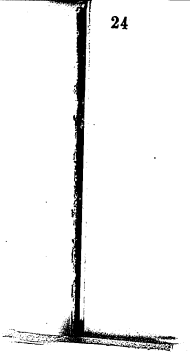
100 Mins. 1 Rev Min

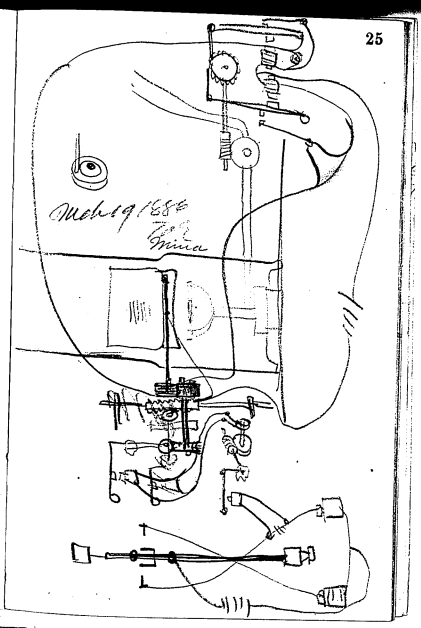
Mchs 1856

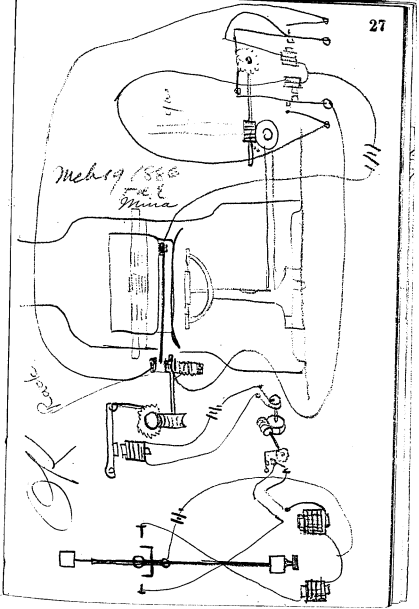
Tan Mins




Apollo Bassani
Reflektor
Nuchrig 1556 T.E
Mina

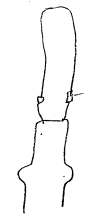



Mobil 9/1886


Mehrg 1556
Fa. L
Muna

March 19 1888 T.A.E.
Mina

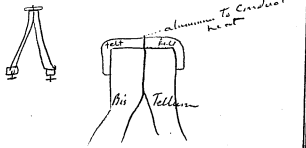
Experiment quantatively & accurately on bringing up metals in Vacuo - Iron - Steel - brass - German Silver Nickel Tin Aluminium - Zinc - Lead - Magnesium - Cadmium, ~~Steel~~ Cobalt, Copper - Silver - Gold - platinum - Read Res & suspension - volts from 100 to melting point - Current ~~from~~ from 1 to 5 - Try these metals in Hydrocarbon Vapor to deposit & afterwards cut out.

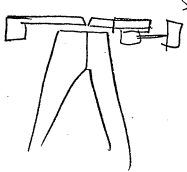


paint enamel over all the metal & part of insulator Carbon will take in Carbon & bake in sand up to hardening point - as in pottery

March 20 1886 Tait
Mica

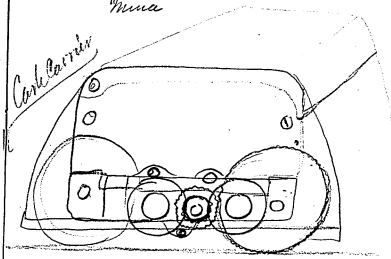
Thermo-sensative - for measuring fine lines
rays as in spectrum - still have advantage
of best Couple.

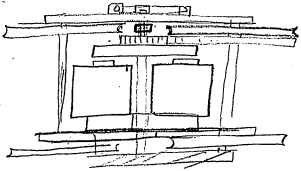




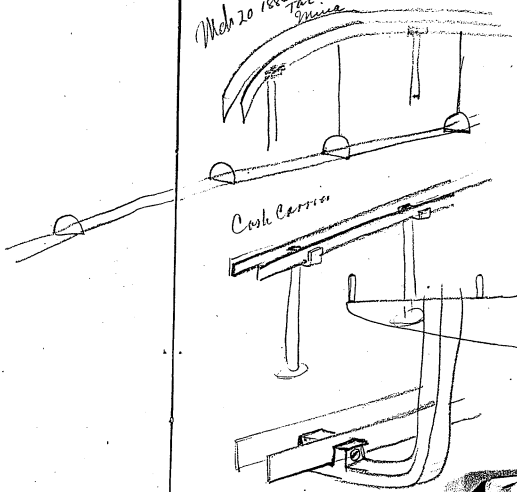
Mch20 1886
Taf
Mina

Carb Carrés



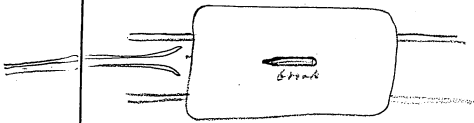


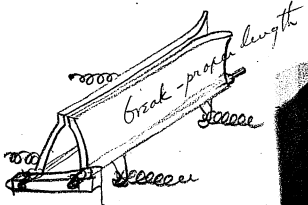
Mch 20 1866 pat. June

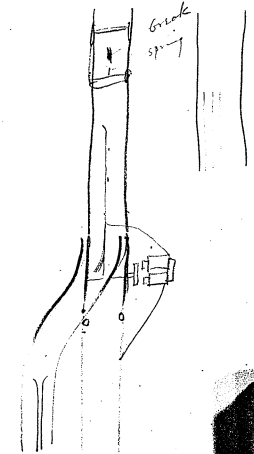


Mich 20 1866 Jack Mine

Cash Carrier





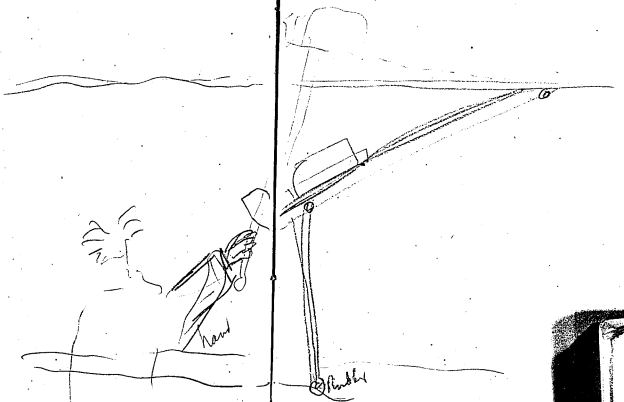

Guick
spring

40

41

Mch 20 1886

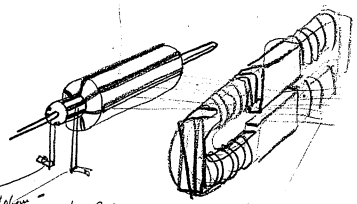
Tag
Mina
Cash Curran



Heat Translation and
E

Mch 20
1886
Tay
Jima

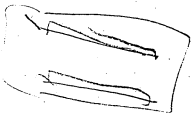
Gm of wood.



Telphin
Galvanometer Low Res
Energraph

Use bands of Copper - Zinc
Lead Tin - Cadmium - Silver
Nickel Iron - German Silver
Antimony - platinum -
Carbon - Sulphides of
Lead - Other conductors
Sulphides phosphuretted
Also tubes filled with.

Magnetically polar
beam of Light & R
Heat -



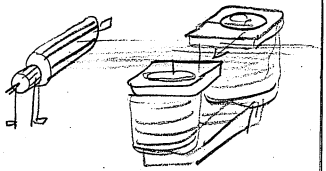
Heat Transformation into E Continued from 43 —

March 26 1886 T.A.E. Mina

Conducting solutions, with non-polybl Electrode.

also all above experts try for. (92) —

Now magnetize the beam of light at right angles

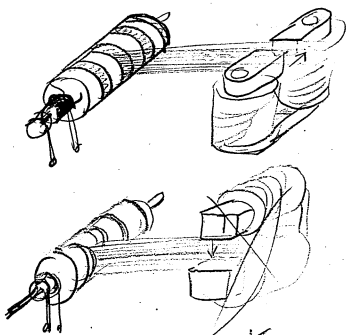


Try all the above

Now use polarized light — and magnetically Effect it straight — at right angles

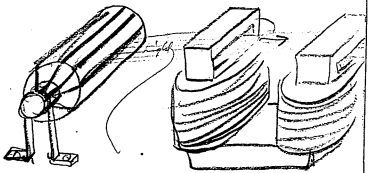
Heat Trans Contd from 45

March 20 1886 T&E Mina



Heat Trans Continued from 47

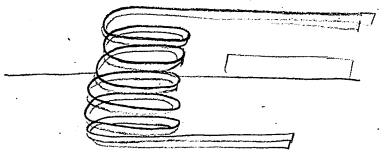
March 20 1886 Fair
Minn



also – cylinder wound Spirally
absorbed polarized Light –
Yet gives reverse currents.
Shield 1/2 of them –
get Continuous ones
by filtering the Beam through
Various substances. –

Electrify the beam -
by continuous ~~rotation~~ by ~~rotation~~
passage through a filter containing
a conducting solution with
electrodes arranged to send
powerful current through the
solution - Same direction +
at right angles - o

Cash Carrier — TAE
Mina

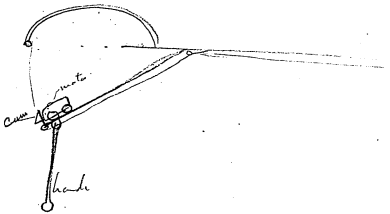


Method of getting on second floor with trains.
Same as a Mountain Railway.
Dan Lacaffine.

Mch 20 1856

T & E

Mina

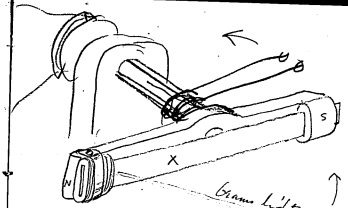


Cash carrier showing Cam & lever, to give the wheels an initial start so annular wont get stuck on center

March 20 1886

Tag
Mina

Shock an Oyster see if it wont paralyze his shell muscle & make the shell fly open—

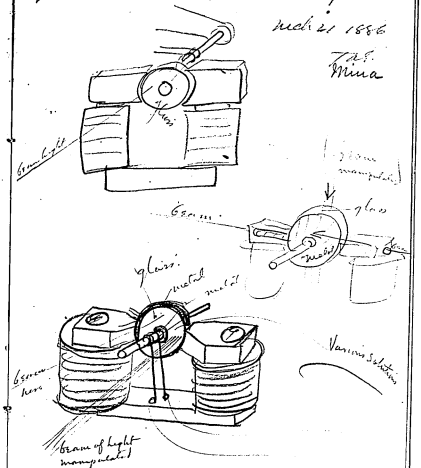


X is 5/000 sheet-steel magnetized N TS.
Beam Light strikes near end - whole rapidly
rotated near telephone, Mirror etc,
Theory is that Heat will disturb the
magnetism + induce a Current

Translation Head Light with E or XYZ

Mich 21 1886

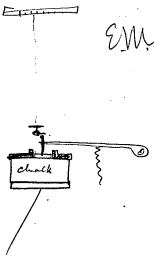
T.A.E.
Mina



E.M.G

Mch 21 1886

Tab
Mica



Theory - The water will raise the end of lever resting on chalk up + work mercr —
Try paper + other porous substances which swell by water.

How would it do to make Zinc Amalgam - + then moved Zincs for batteries by Hydraulic press - always be amalgamated least fuller.

March 21 1886

Talc —
Mica

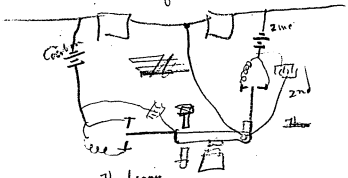
For Storage Battery plates —
moved powdered Lead + dry salt
or other large crystal Salt &c
Salt - by hydraulic pressure
then dissolve out —

Make Collection of rare metals
large quantities,
Tellurium - Selenium - Vitreous + metallic, Cadmium -
Thalium - Bismuth Antimony
Tin, Arsenic, Molybdenum - Silicon
+ others —

also Selenides phosphides, Tellurides
Sulphides, Arsenides.

March 21 1886 TAR
Mina
Phonophby

Prolongation of the wave—
for long currents.



Try

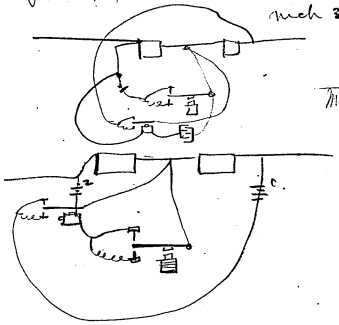
Phenoplex Reverse Circuits

inch 21

RSFC

Tag

Mica

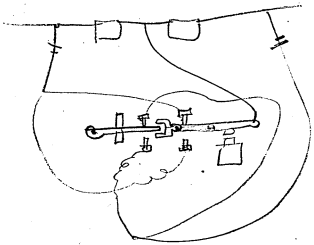


double strength

March 21 1856

Tait
Mica

thermoplex



Swing-needle problem

March 21 1886 Tag Mina

Phenaphis – Hfget the ay Condenser work phone Into a Condenser around magnet thus preventing changes of adjustment by variation in strength Line Current —

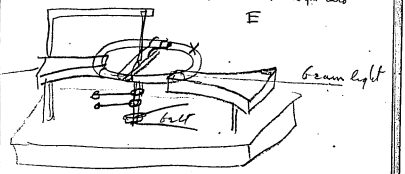
March 21 1886 Tag
Mica

XYZ Experiments Electrodes to be numbered
weighed in various solutions —

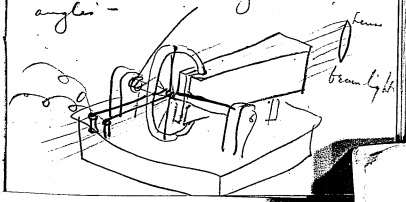
100 Zinc	100 Hard Rubber
" Copper	Sulphur
Lead	phosphors
Iron	Amorp phos
Carbon	Paraffine
Antimony	Asphalt
Tin	Sulphide Iron
Cadmium	Lead
Molybdenum	Tin
Nickel	Zinc
Thallium	Copper
Silver	antimony
Bismuth	Arsenic
X	X
XX	XX
XX	Phosphide Iron
XX	Lead
	Tin
	Zinc
	Copper
	antimony
	Arsenic
	XX
	XX
	X

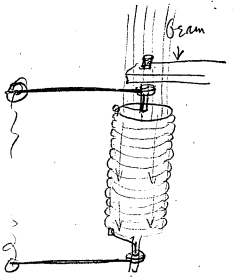
Mch 21 1886 Date
Mining
all the Borides - peroxides - Iodides 77
fluorides, Selenides, Tellurides -

Translation Ruulent Hot Light into
E



X circle of Glass tubing 3/4 @ 1 mch
dia - filled various conducting fluids -
rotated to Cut beam light various
angles -



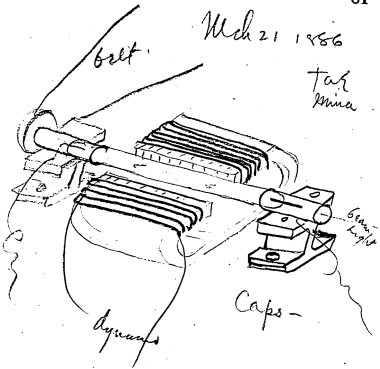


March 21 1886
Tas
Mina

Beam Light
Circular passes
through Tubes

Coal Tubes filled various Solutions

Mch 21 1886

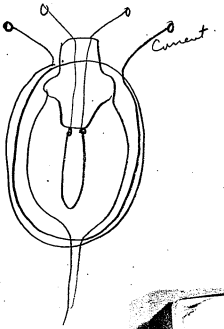


XYZ - use Iodide K Sensitive
+ accumulator -

Try some experts with vibrator primary
Coil one ohm to 7 powerful battery
plates of various metals in liquids
noiseless movement like watch plate

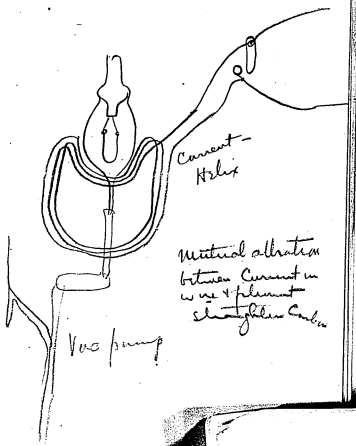
Mch 21 1886 Tar
Mica

Straightening filaments
— Lamps



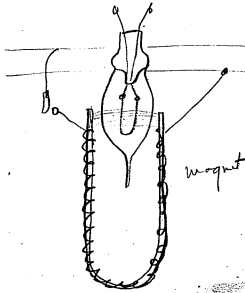
March 21 1886

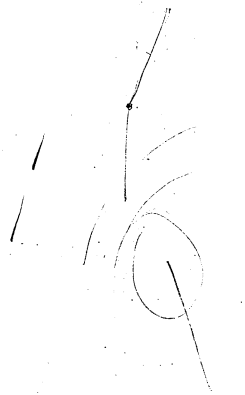
Straightening filaments in Vacuo —



March 21 1856

Straightening filaments in lamps—





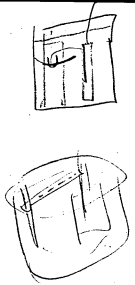
March 21 1886 TAE — Mina

Use Tellurium electrodes as dehydrogenizers - Saving powdered Tellurium —

Try Carbonize thin Celluloid in heated oil bath —

See if Licorice can be bleached if there are more than one substance that can be separated by solvents or precipitated —

Licorice as clamp to Enlarge — posted on filaments before Carbonization



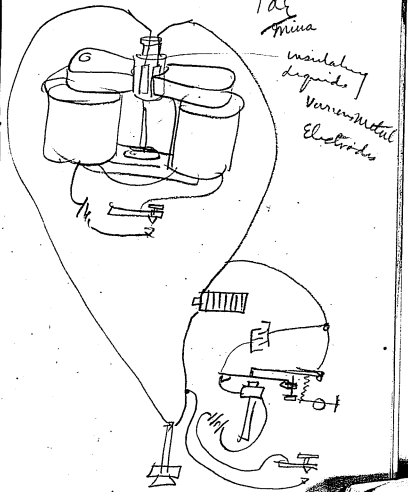
Mch 21 1886

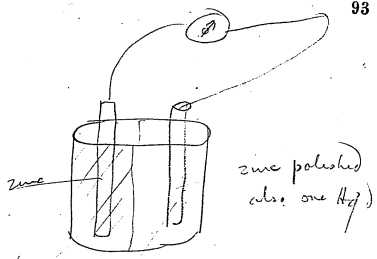
TAE

Mica

insulating liquids

Vernier Metal Electrodes




zinc
zinc polished
also one Hg)
Hardened
Steam Hg
Sal Sal Zinc

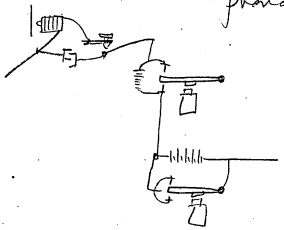
Mch 21 1886 —

7 A.M.

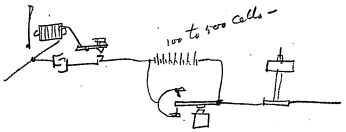
Pass became a flight for
spectroscope between poles
powerful Electro magnet
notice any displacement
lines ~~with the spectrum~~ also magnetize
glass prism — also
the Bisulphide prism
also a glass cell
prism use various
liquids —

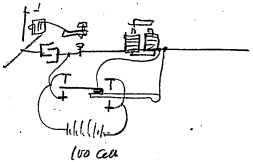
Mch 21 1876

Tal
Gmia
phonoplex

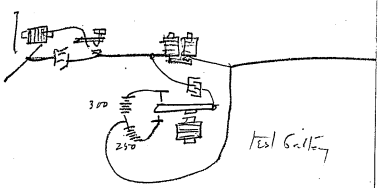


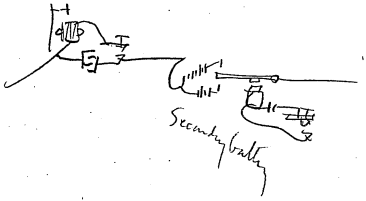
Mich 21 1886 Tel
Mina
Phonoplex





March 1 1886 Tad
Mina
phonoplex

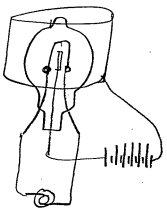


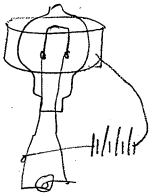


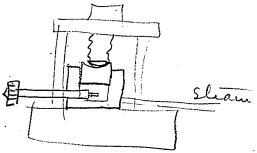
March 1886 TAE — Nima

March 21 1886

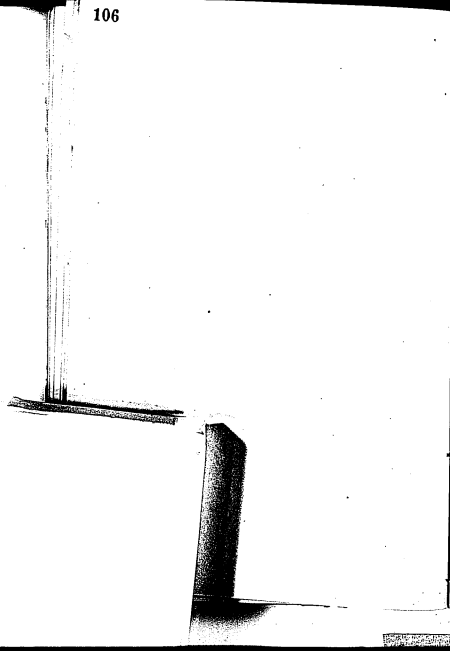
Tair
Trina







Squeezing out liccorice
filaments with broadened ends



March 21 1886

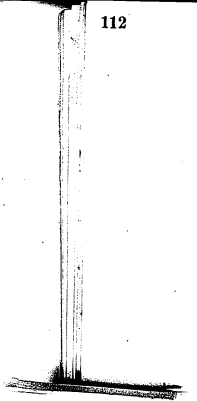
XYZ Solutions for immersing the various Substances

The Minus

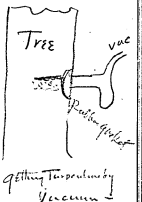
Cyanide K
Ammonia Conc
Bisulphide Carbon
Benzol
Benzine
Nitro Benzol
Aniline Oil
Bromine
Chloral Hydrate
Absolute Alcohol
Turpentine
Oil Cassia
Linseed oil
Pure Sulphuric acid
Fuming "
Hydrofluoric
Phenylamine
Ether
Chloroform
Tar-wood
" Coal
Carbozotic acid

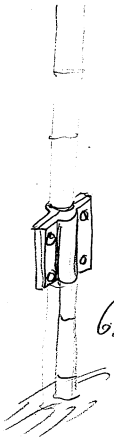
Phosphoric Anhydride
Sulphide K
Nitric acid
SO4 — 3 proportions
HCl - strong
Chloride Lime
acid Pot Sulphate
Caustic Soda Potash
Lime -
Sulphate Iron
Ferri + Ferro Cy Iron
Nitroprusside Sodium
Sulpho Cy-K
Chl Ammonium
Nitrite Soda
Acetic acid glac
Acetate lead
Chl Calcium
Borax
Sulphate Manganese
Molybdic Acid

Water glass
Hydrocyanic acid
Butter Antimony
Bichromate K
Iodide Methyl C
" Potassium
Iodine H_2O
" " Bisulphide Carbon
Chloride Carbon
Naphthalin
Ammonia Citrate Fe
Chloroform Ale
Peroxide Hydrogen
Permanganic acid
Permanganate K
Fluoride Ammonia



Mech 21 1886 Tate
Mica



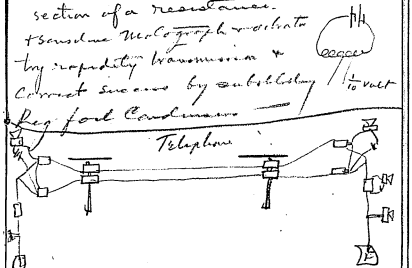


Gamboo
Clamp to Compress fibre

March 21 1886 TAE
Mina

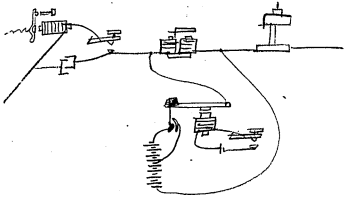
Open out Balata for sale — also
balata varnishing resin for dutty

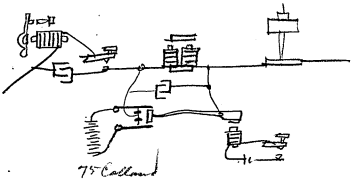
Make 20 ½ inf[ra]red Condensers of Copper +
iron - with paraffine paper — then make
artificial zinc Sulphate Lmi - + make
them equivalent to Alternate Cells
Then write a smaller Emf from a
section of a resistance.
+ sensitive Mercograph vibrator
- by rapidity transmission +
Correct sounds by substituting
Reg[ular] Condensers



March 21 1886 TAE
Mina

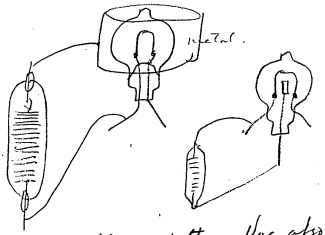
Phonoplex



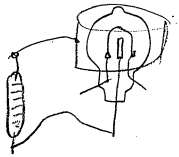


75 Callum

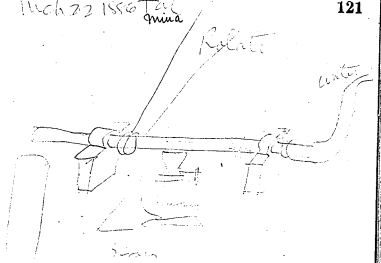
March 21 1956 TAE —— Mina



Deluc Drypile. 1000 Volts. in Vac also not in Vacuum —



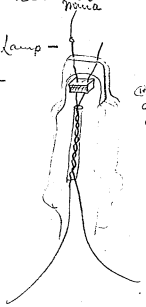
Mech 22 1556 T26 mua



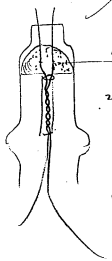
March 22 1886 Tuesday

Municipal Lamp –

Edison-Sawyer-Man –



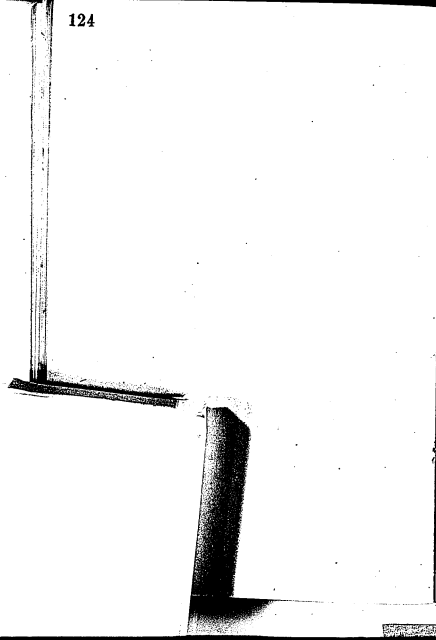
ordinary non-conducting (comparatively) charcoal which conducts with the 800 volts & practically none at 50 –



1 powder of non-conducting Lampblack with & without an oxide

2 Conducting Lampblack with various portion of non-conducting oxides, so great an amount of oxide could be used to make it an insulator yet the 800 volts will jump from particle to particle

OVER



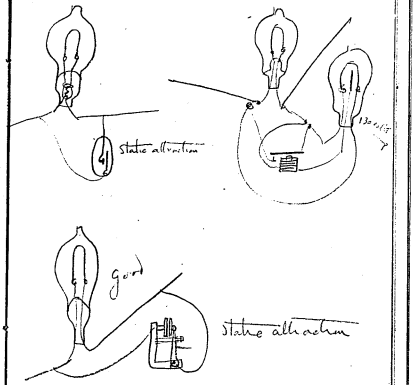
March 22 1886 FAE
Prima

Continued from 123

3 Dry amorphous phosphorus
4 Sulphide Molybdenum -
5 Sulphide Lead -
6 Powdered Cuboazyrite
7 ordinary Pyrites -
8 Powdered arsenic
9 " Rutile
10 Peroxide Lead & also Peroxide Manganese mixed with non-conducting oxide —
11 Oxide Copper mixed with non-conducting Oxide

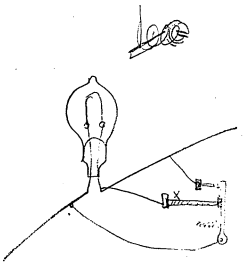
March 22 Tag Mina

Municipal Lamp Cut-outs



March 22 1886 T.A.E.

Municipal Lamp—

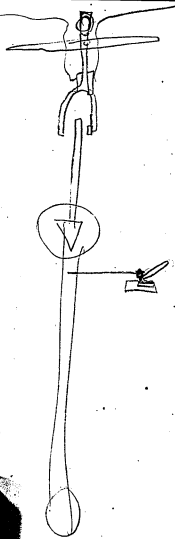


X is a stick of wax or other Substance mixed with a Conductor so that 55 Volts can't heat it enough to do often but 1000 Volts comes the heat is great and Lever touches point + cuts out Lamp—

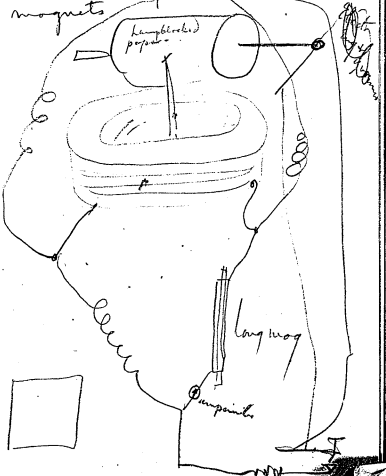
March 23 1886 TAE
Mina

Make a set of long magnets of ½ inch
nonmagnetic iron of following length -
1, 2, 3, 4, 5 - 6 & 12 20 40 feet in
length wind evenly after
covering with paper No 20 wire
mounted wire from end to end
Then magnetize with same current
in each experiment

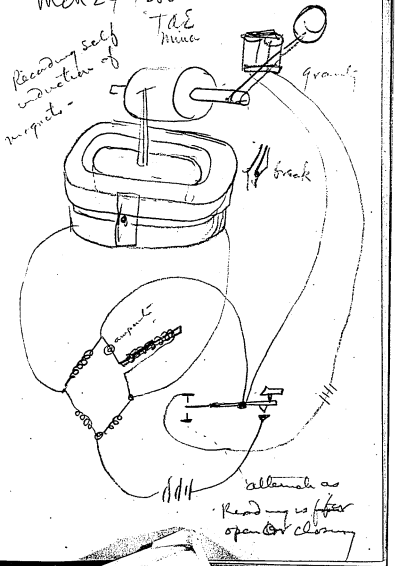
and move an exploring coil [illegible]
with a vertical deflector magnet
at different distances & make
Curves, opening & closing the
[illegible] circuit — & [illegible]
get the projecting power for the
lines of force of long
magnets — emf of one gram from
analogous to Electricity



at same time get the charging + discharging times of these magnets



Mch 24 1886 T.A.E.

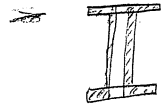


March 23 1886 Tues

instead of allowing the cylinder to Rotate by dropping of a lever by gravity Have the cylinder Connected by friction to a Constantly rotated Elec Engine with governor – release by ~~Clockwork~~ magnet = this will give true Curve on blackened paper – perhaps only a Torsion wire galvanometer a la W.H. Phelps – style = breathe to mark –

If the Arrangement Expmts show any abnormal results. Make following

500 feet smooth soft NO 4 iron wire – cover carefully with paper Spirally – wind its whole length with single layer NO 22 wire Then wind this on wooden Helix like magnet,



also make one of lead zinc Tin & also Copper same length & wound of NO 4 iron

Mch 23 1886 TAE
Mina

Get some sheet Tin + have
Tools for the foundryman cast some
thin iron on them if successful
get some fancy stamped tin
ware + cast thin plates if good
have some fine examples made
+ arrange with Tony Sloane
Mm.

also Try brass work Turned + brass
Cast + Try at Bergmann's

Try Metal Condensor coil made
with sheets of oxidized brass
coil. see if it will work
as Stearn's & Gallaway

Make XYZ Thermo poles of following

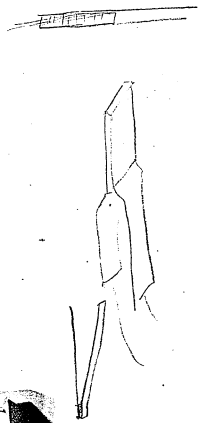
10 pair series -

using Radiant Heat
Light, Electricity
magnetism, one and
Color in each other
also, Radiant Heat and
Light alike
also Ritter + Steadman
Up each - also Ritter
+ magnetism
also magnetic
also Light + E
Light + mag.

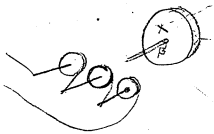
Sulphur - Copper
Sulphur glass
Sulphur Hardmetal
Sulphur Arsenic
Sulphur Paraffin
" Asphaltt

Sulphur Sulphurets Zinc
Sulphur Melted Chlorides + other salts
" Tin Zinc Iron Lead Carbon

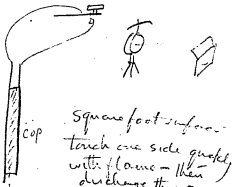
Paraffine + the above
Arsenic + the above
Hard Rub + the above Melted salts + the above + one with the other



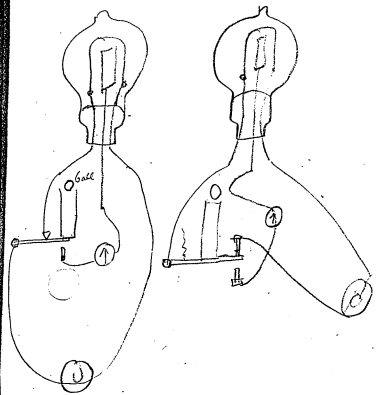
March 23 1886 [illegible]
Prima



Thermo disc -



Meh 23 1886 Tag
Mina

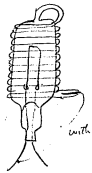


See if there is a Current
after the Current is discontinued
but there is still a brilliant
Incandescence use 100 cp Lamp

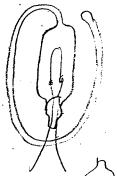
March 23 1886 TAE

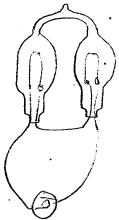
Mina

Dry Life



with resistant

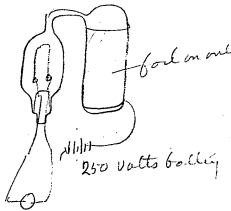




Life

Solution for
gel Life Blocks

March 23 1886 TAS
Mica



Try battery to both poles - also
Hg. vac - also reverse battery
also 1000 coil test battery.

May be Vapor Hg plays important
part. Try jump spark for couple
hours after Lamp furnished before
getting life test to make agree

March 23 1886 TAE —

Make 10 Lamps for Life with dry phosphorus in —
also Sulphur — also Zinc —
Tin, Lead, Bismuth, Iron —
Antimony — Arsenic — Iodine,

Carborize some filaments with long Cotton fibre in them & put in Lamps. so filaments hang down & show shape distinctly.

March 23 1886 —

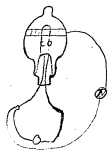
X Y Z

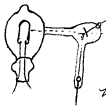
Make self Vibrator but with points that can be made to change the Ends of zinc Tin etc wire so whole ckt will be of proper material to Conduct X Y Z

also a Telephone where every Kind of change of material can be made - perhaps 40 or 50 Cheap telephones Every one an anomaly of X Y Z devices Connect be between + run the scale on everything with [illegible] in all X Y Z Experiments

March 23, 1886 Mica

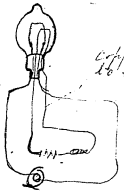
Make Lamps of all kinds of glass and test conductivity.





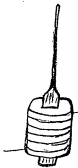
polished silver

Also one of polished hard rubber.

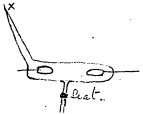


Copper filament 16 Candle 0 mil-Curr 10-

March 23-1886. Mica



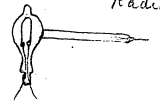
Dry various liquid into capillary index on if diagonal & E contracts or expands.
Same -

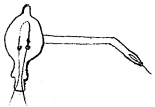


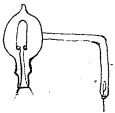
Put under water + break capillary x off, but the H_2O & SO_4 remain in.
Take out and melt x seal there decomposes + burst it.

March 23 - 1856. Mina

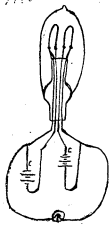
Radiant matter in vacuum.

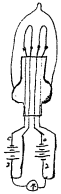




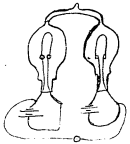


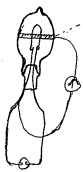
March 23 1881 - Mercy



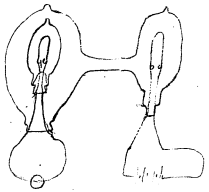


Vary incandescence of one other constant

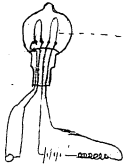




Scales measurements.



Oct 23-1886. Menlo
10 Lamps each

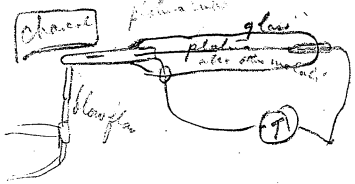


Zinc
Copper
Iron
Aluminum
Magnesium
Zinc
German silver
Lead.

Broke them slowly after Reg Lamps, finished & good vacuum.
Afterwards broke them gradually up, slowly keeping vacuum running until bursted.
Run Life Curve.

March 23 1886 TAE

If high incandescence of Carbon filament causes electrification + conduction in vacuo then perhaps platina heated by flame (blow pipe) to high incandescence will give current to Central Electrode



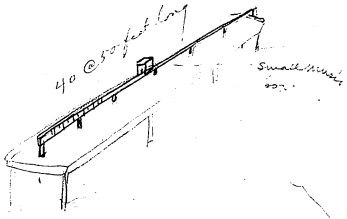
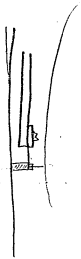
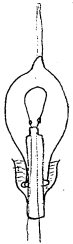
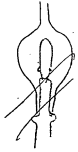


Table scale + slide with Music box to test deaf apparatus







Long to keep away heat?

Try following sealing Compounds

sealing wax

paraffine

Paraffine + Asphaltt.

(plaster, paris set, then heated + plunged into paraffine —

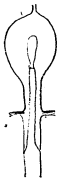
Zinc white Asphalt + gutta percha —

Dammar softened by Hot linseed —

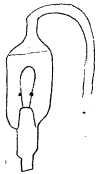
+ others

March 24 1886

Fuse



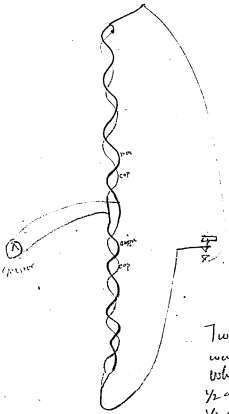
ground disc polished
Surround with oxidized tin
Thread on one support
adhesion Balata, Rubber —
gutta = gum —
Vacuum Krupp process.

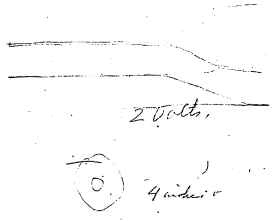


good

Platinum filament
wound thick points
with electric current
with oxide magnesia
such as will stand
then rendered by
Current using electricity
in atmosphere Hydrogen
or other inert —
Idea to get conductivity
merely momentary.

Mch 24 1886 TAE

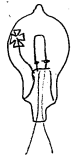

A
Twisted Iron Copper wire bare + touching
Whole length but ½ of iron connected to ½ of Copper wire of platinum bridge to
Copper Conducts



10

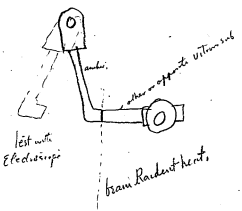
March 25 1886 Tal

Hang ten lamps up by small wires from Centre of Ceiling of a room or rooms get life also 10 lamps surrounded with several inches with metal grounded, get Curve of life - Think the former will show very much better -



screen of mica generally Goes see from the generally radiant

Mch 25 1856.



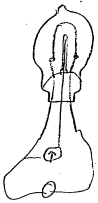
Theory is that the two Metals soldered
rubbed together are positively & negatively
Electrified by the heat acting on
surfaces as Thermo pile they are
Thermo piles of very high Emf
Some no Resistance Metals and
antimony are charged very Low
Emf —

Oct 1 1857 P.S.

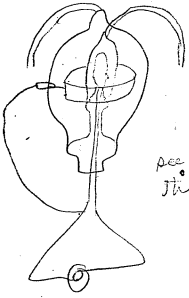
Rotate Collectors to take off E use fine wire pens
+ Coarse secondly to reduce Tension

March 25 1886

Tate



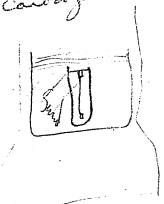
The Cathode wire guarded with thin glass tube out of conduction.



Piece of carbon Through glass

March 25th 1886 –

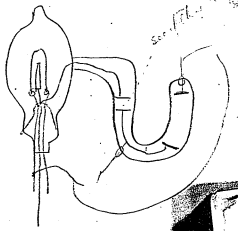
The oxidation on surface of a filament by hot sulphuric acid throws it into all kinds of contortions by relieving the strain of the surface. In Experiments on slow carbonization suspend – and both in tube single filament, & let it contort as it will, then try one with quick Carbonization



Put several of the finest fibres together with Isicorica with broad end of licorice - Sandarach acts as regulator preliminary -

See of licorice dissolves in any of the Hydrocarbons etc.

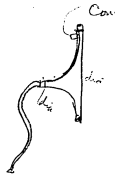
Roll out licorice hot - also warm oil -



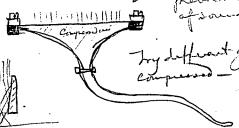
March 25 1886 T&E

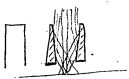
for the Anto prelim board cutting
put several sets of Cambrics
taking each set out at different
weights
stages, Carbonize finally &
Run Cambrics on finished
perhaps paper soaked in liquorice
calendered Hot stamped follows to
Can be cutyd by Anto Prelim so
perfect as to beat Cambrics, then
a Million cld be Cutyd at once —
use uncalendered paper so licorice fill up pores
perhaps 25/000 uncalendered can
be cut with revolving Knifes so
there is no cavities & perfectly even
quality obtained. if impossible do
the material shall it comes to so afraid
Glue — Room etc making it hard &
others cut down to size

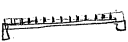
March 25 1886 70.8

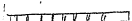


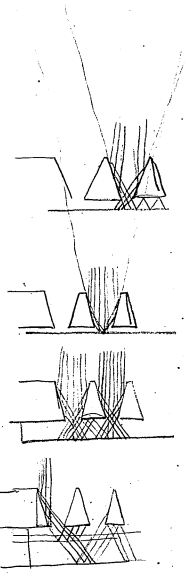
if vacuum desired
Cannot Sound Bell
Diaphragm Compressed
and cannot be set to
the ringing







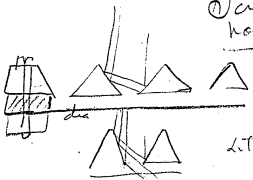




March 25 1886 TAE

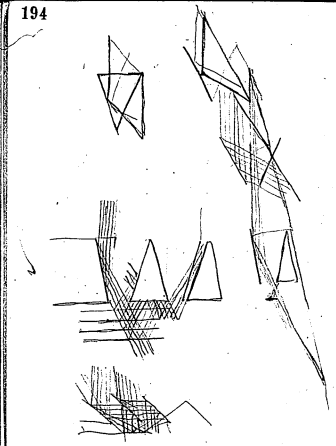
Draf apparatus

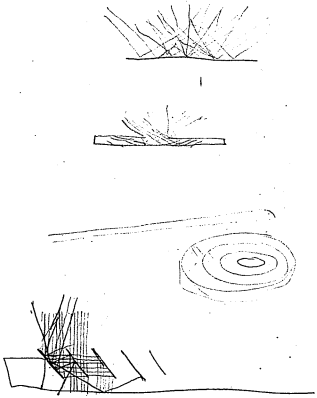
Screen of cane



ok

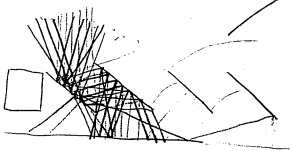
distance of fish a from Andrews
distance of bevel from [illegible] 4 time
but by all distances





March 25 1886

Tate



Coned rings
placed edge
Emery Cloth
to prevent
to prevent
A Revolving
Wheel

March 25 • 1886

Tate

½ section
Coned rings
Magic wand partition
Thimble houses and things
like this in Laboratory

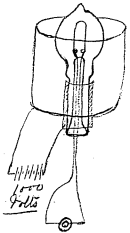
Mar. 26, 1886, Mica.

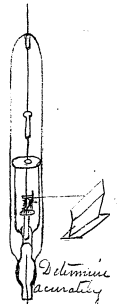
Blackening experiment of Condensers

Dry condensers paper dipped in Rosin dissolved in turpentine. Rosin paraffine dissolved in turpentine. Rosin Turpentine, Linseed oil, Asphaltine Paraffine in Benzine.
Asphaltum in Turpentine
Asphaltum Paraffine in " "
Asphaltum Paraffine in Benzine
Asphaltum Linseed oil. Turpentine
Asphaltum Linseed oil Paraffine Turpentine
Gutta Percha in chloroform.
Gutta Percha Rosin in alcohol & Chloroform
Quick drying Japan -
Shellac Alcohol Chloroform Gutta Percha.
Bisulphide Carbon - Rubber
Bisulphide Carbon Saturated with Sulphur also Paraffine -
Coach Body Varnish
Furniture "
Collodion Saturated with Rosin
" " Camphor
Alcohol Rosin & Camphor.
Rosin Camphor paraffine Turpentine alcohol Rosin (Saturated) dip paper & while still sticky, after drying, dip-

from 100 mesh size powdered chalk until it is wholly covered. both sides build condenser from this.

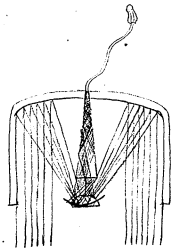
Mar. 26, 1886, Mina

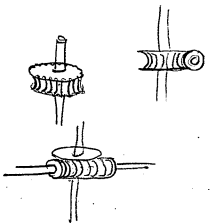




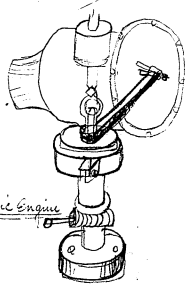
Determine accurately
Expansion Contract
Candle power.

Determine if the volts or amperes from Centre pole lamps and candle power have a definite relation with life of lamp.





Mar. 26, 1886. Cina.

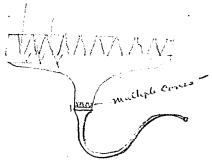


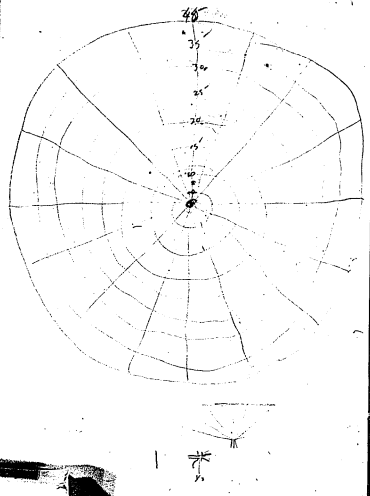
Electric Engine

Apparatus Electromotographic with circular discs of insulating material such as glass with 4 inches area, flat disc of platinum with 4 inches area, thin glass - also mica, Rubber, Porcelain, etc, as thin as possible. Use vibrator, Induction primary and also secondary and ascertain if with increased area the Engagement is not a Condenser action.

Mar. 26, 1886, Ithaca.

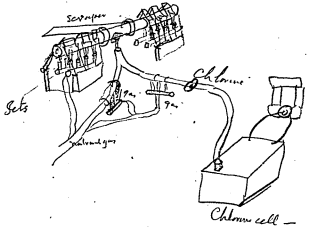
Circular to outer chambers.

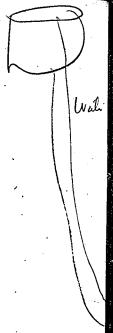




March 28 1886 TAE

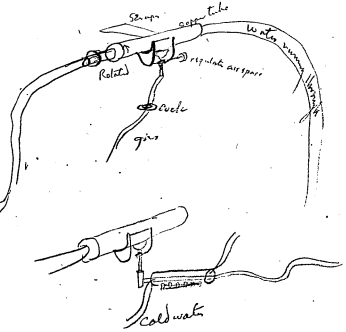
Lampblack –





March 28 1886 TAE

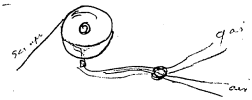
Lampblack -



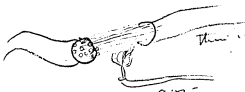
March 28 1886 TAE

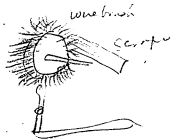
Lamp Clock

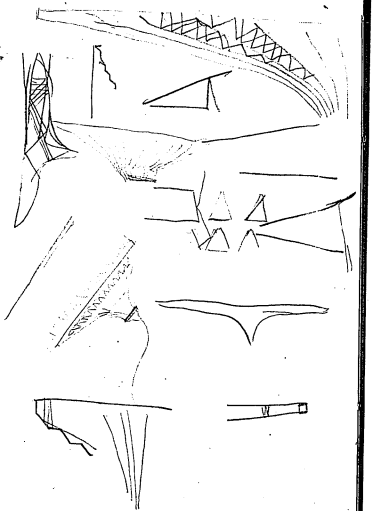
Mix water with Kerosene -



mix in proportions to just burn in inclosed Chamber.

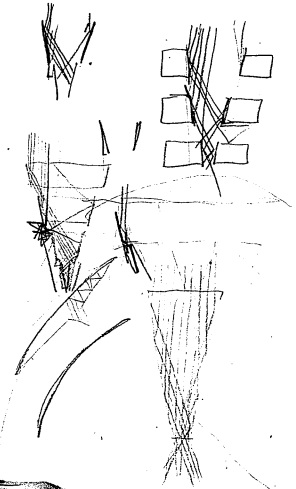


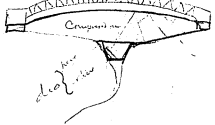




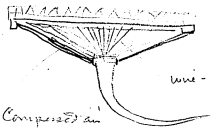
March 26 1886 Taf

Lampblack –




Corrugated iron
dead tree trunk

Mch 28 1888
Fels

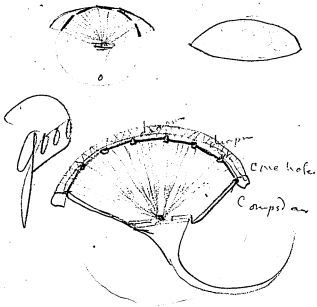


mer-

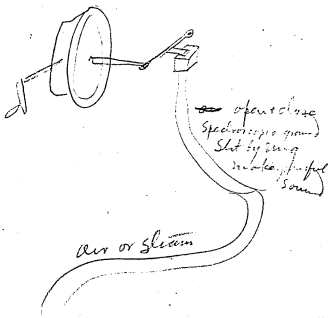
Compressed air

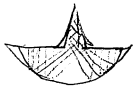
by Ether, + other very light
Spec gravity Expand
also by heat
under pressure

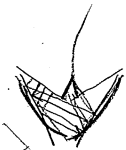
Mch 28 1886



Mch 28 1886 +cc







Med28 1556 no 705

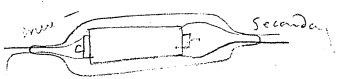
bone hole

DVB

Hemithorax of newborn
Blinds diaphragm
No compression
Was with Compare

March 28 1886 TAE

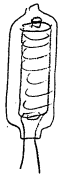
It may be that radiant heat formed be magnetized in a certain way before striking the thermo pile + the heat in this form would nearly all be turned into E.



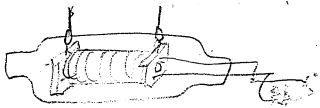
Try Rigaud Edinburgh & C
in Vacuo — heat tube
well — see if sharper

~~ab~~

March 28. 1886 TAE



Try Reg 7 ohm Coil in Vacuum against one in air on phonoplex.



Try $\frac{1}{4}$ or $\frac{1}{8}$ inch spark coil with Vacuum - with Vibrator outside

March 28 1886 –

Try in our small Condenser 60 Lead – Linseed paper dried as still little sticky – Lead – Then paraffine paper then Lead Linseed paper Lead – Connect in series.

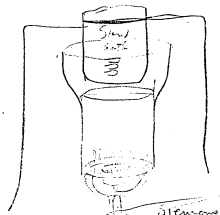
Charge & see if constant Volts like Steel Scaling –

Remember that Condensers that [illegible] as storage.

March 28 1886 TAE

Auto prelim

Carbyl



Stevens Regenerative Furnace for Heating reagents

Bunsen flame

or Even a row of Bunsen burners with glass Chimney using heated air mixed with products of direct flame in Sand bath

Note: How would Copper 15 @ 20 mesh do in Sand - Carbon heat and

March 28 1888 TAE

Lamp

Important = I think there is no doubt that if a coating of infusible Oxide can be put on the Carbon filament, that the Oxide could be carried by the static charge and not the Carbon = The attempts that have not been successful have been with the uncoated filament, The filament should be 3/4 carbonized at least if not fully Carbonized and then coated and the Coating go through the process of Carbonization as if it was a filament.

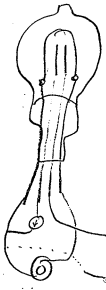
Coat carbonized filaments with syrupy - Acetate, Chloride of Aluminum - Magnesium, Calcium, also gelatinous Silica Boracic acid - If enough Coating not Enough record after Each

preliminary say 500 deg until proper thickness secured -

Perhaps If the filament fully Carbonized and suspended in a bath of chloride or acetate of magnesium - aluminum - Chloride Calcium etc. and connected with the Current and the temperature of the Carbolitum kept high - that the Grade of Current is weak will be deposited as Coherent Plate on the filament =

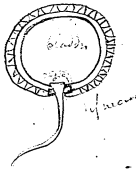
Note - get the Examples that used on platinum - mix infusible oxides with it -

March 28 1888 TAE



March 28 1888 at Tue

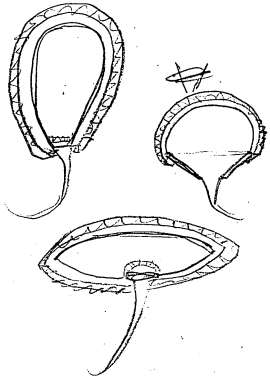
Good!

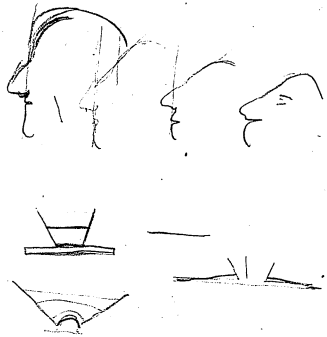


Bladder in metal. Rubber the Compressed air also not this diaphragm, to Ear tube

Completely Enveloped with Coned circle –

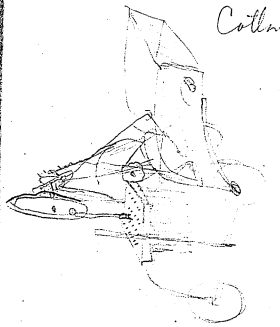
March 29 1866 TAS

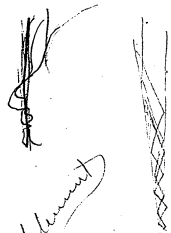




March 30 1887 [illegible]

Cotton picker





Compressed Spherical

Magnesium fulminate

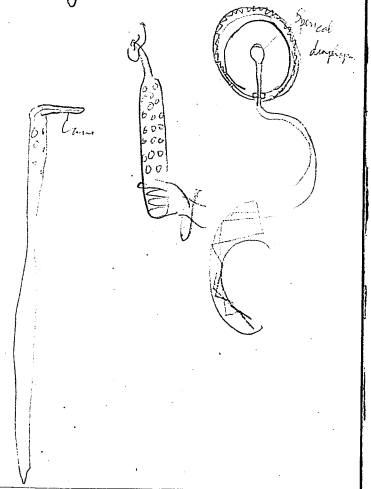
Dry Spherical Magnesium fulminate

Granulated Magnesium fulminate

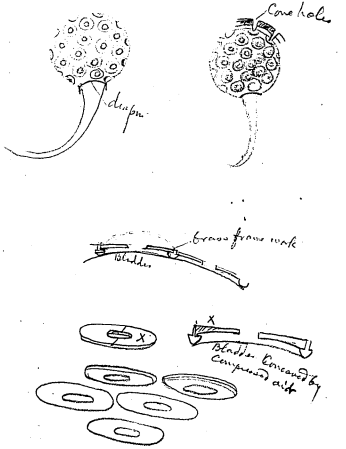
Exercises in Magnesium fulminate

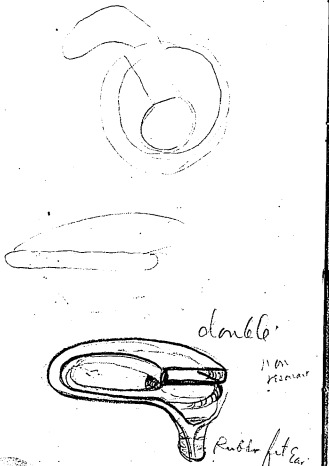
March 30. 1880 Tu. E

Draf -



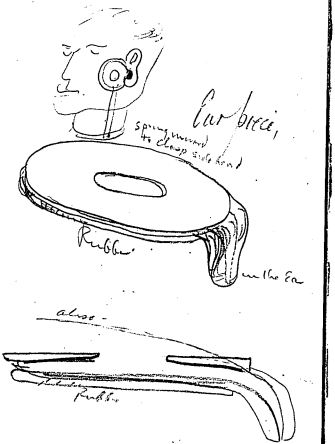
March 30 1886 TAE

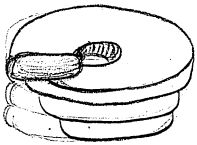




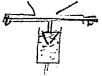
March 30 1886 TAE

Brief-





March 30 1886 TAE
Deaf

get Edwin Telephone – also
gilliland Telephone also
The  and

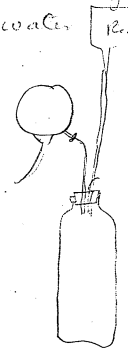
Test Hearing the Effect of a
Mouthpiece & Efficiency
of the Chambers of all
Sizes & Shapes also if
Chamber must be Light at
Edges – use a pipe
to Sound – also the voice

March 30 – 1886 TAE

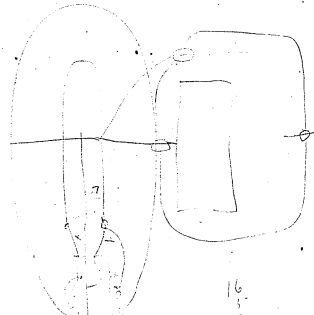
Deaf –

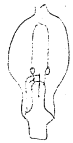
For Compressing the air

use water Reservoir

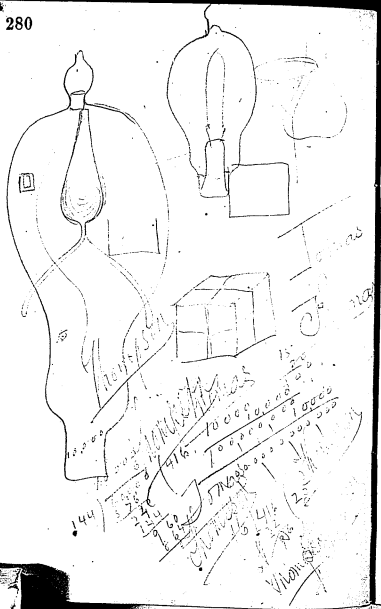


or left tube Hg in Gasleg





280



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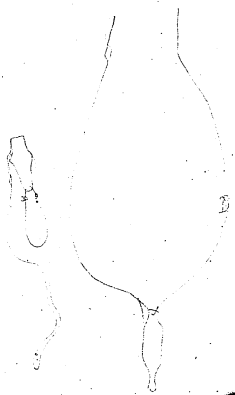

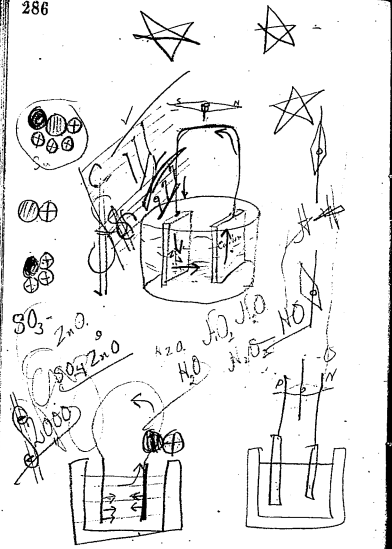
SO_3
ZnO
$ZnSO_4$
H_2O
H_2O
H_2O
HO

N-86-03-18